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Notes-Générales/DECLARATIONUS080MUS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of : ROBERT et al.
Serial n° : 09/991,773
Filed : November 16, 2001
Group Art Unit : 1713
Examiner : RIP A. LEE

For : PROCESS FOR OBTAINING A PHOTOCHROMIC LATEX

DECLARATION PURSUANT TO 37 CFR 1.132

I, Sylvette MAISONNIER declare :

That I am a French citizen residing at MOISSELLES 95570 FRANCE ;

That I have been awarded a degree of Doctor of Sciences by Pierre and Marie Curie University - PARIS ;

That I am currently employed as Researcher of the R and D Department, Materials, Thin Films Group of ESSILOR INTERNATIONAL (COMPAGNIE GENERALE D'OPTIQUE) where I have been employed since December 1998 ;

That I have read and am familiar with the United States Patent Application serial 09/991,773 filed on November 16, 2001 for "Process for obtaining a photochromic latex", being one of the named inventors;

That I have read and am familiar with the prior art references cited by the Examiner and more particularly US 2002/0 128 39 A1 ;

Emulsion polymerization involves totally different mechanisms depending upon the particle size of the monomer dispersed in the water medium.

In emulsions for emulsion polymerization of latex there are present :

- monomer particles dispersed in a water medium ;
- a surfactant ;
- a polymerization initiator, typically a free radical initiator, and preferably water soluble.

However, depending upon the monomer particle size, the emulsion polymerization mechanism is quite different.

In reference with the attached drawings, the different mechanisms will be disclosed in connection with the emulsion polymerization of photochromic latices in the presence of a free radical initiator as the polymerization initiator.

1. Emulsion polymerization using a conventional monomer emulsion.

In a conventional emulsion, the initial monomer particles containing a photochromic compound (1) typically have a size of 1 to 10 μm .

These monomer particles are surrounded by surfactant (2).

Due to the presence of the surfactant, the initial emulsion also contains very small micelles (3) of monomer having a size from 5 to 10 nm.

The polymerization starts in the micelle and proceeds until obtention of the final polymerized latex particles which typically have particle size of 150 to 250 nm.

In this emulsion polymerization, the initial monomer particles containing a photochromic compound disappear by feeding the much smaller micelles, during the growth of these micelles, where the monomer polymerization takes place.

2. Emulsion polymerization using a miniemulsion.

In a miniemulsion, the dispersed monomer particles (1') containing the photochromic compound have a size ranging from 50 to 500 nm, typically around 200 nm.

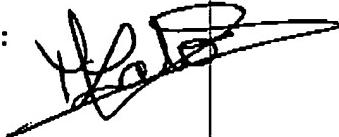
These monomer particles (1') are also surrounded by surfactant particles (2').

However, in that case, in the presence of surfactant and the free radicals, the monomer polymerization takes place directly in the initial dispersed monomer particles to produce final latex particles having a size typically ranging from 200 to 250 nm.

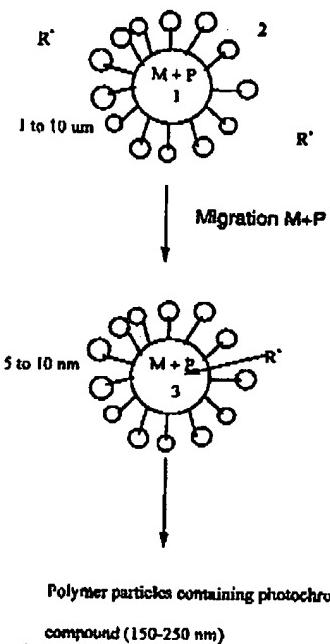
I further declare that all statements made herein of my own knowledge are true and that all statements on information and belief are believed to be true ; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issuing thereon.

DATE : 24/11/03

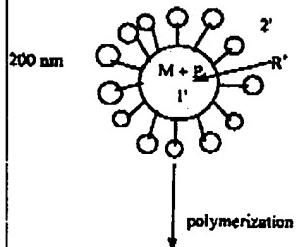
SIGNATURE :

A handwritten signature consisting of stylized initials and a surname, written over a diagonal line.

Emulsion polymerization of a photochromic latex using a conventional emulsion



Emulsion polymerization of a photochromic latex using a miniemulsion



Polymer particles containing photochromic compound (200-250 nm)

M: Monomer
P : Photochromic compound
R': Free radical